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Externally Launched Narrow-Wavepacket Approach to Fluctuation Reflectometry* BEDROS B. AFEYAN, *Lawrence Livermore National Laboratory*, ALBERT E. CHOU, *University of California, Los Angeles*, NEVILLE C. LUHMANN JR., *University of California, Davis* — By using an optical mixing technique, one can launch a narrow wavepacket of weakly damped low frequency modes, such as lower hybrid waves, into a plasma which will then slide down the radial profile. Microwaves scattered from such a packet will have encoded in their phase the amplitude squared of the field at the location of the narrow packet. Both the density profile and fluctuations can be reconstructed from such a temporal record by a number of new numerical algorithms specifically designed to achieve this task.

We will show numerical simulation results (using our SOFTSTEP codes) of this technique in the presence of 1 and 2D fluctuations and density inhomogeneities. The traditional handicaps of reflectometry concerning the mechanism and location of the reflected signal are alleviated by this externally generated narrow-packet scattering approach.

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☐ Prefer Oral Session
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